

CLAIMS

What is claimed is:

1. An apparatus for providing detonative cleaning communication through a vessel wall comprising:
 - a first conduit extending from the vessel wall;
 - a first valve having an open condition permitting communication through the first conduit and a closed condition; and
 - a second conduit having an insertion portion dimensioned to be received within a receiving portion of the first conduit; and
 - a second valve having an open condition permitting communication through the second conduit and a closed condition.
2. The apparatus of claim 1 wherein:
 - the first valve is a sliding gate valve; and
 - the second valve is a sliding gate valve.
3. The apparatus of claim 1 wherein:
 - one of the first and second valves is a sliding gate valve; and
 - the other of said first and second valves is a hinged gate valve.
4. The apparatus of claim 1 wherein:
 - one of the first and second valves is a manually-actuated or machine-actuated valve;
 - and
 - the other of said first and second valves is a manually-actuated or machine-actuated valve.
5. The apparatus of claim 1 further comprising:
 - means for sealing the first conduit relative to the second conduit over a first range of insertion of the second conduit within the first conduit.
6. The apparatus of claim 1 wherein:
 - the second conduit has an interior surface off-axis to an exterior surface.
7. An apparatus for providing detonative cleaning communication through a vessel wall

comprising:

a conduit defining a flow path through the vessel wall; and
a valve along the flow path and having an open condition and a closed condition.

8. The apparatus of claim 7 further comprising:
a source of fuel and oxidizer coupled to the conduit;
means for igniting charges of the fuel and the oxidizer.
9. The apparatus of claim 7 wherein:
the valve is secured relative to the wall;
the valve is along a downstream half of the flow path.
10. The apparatus of claim 7 wherein:
the valve is a first valve at an upstream end of an access conduit; and
the apparatus includes a second valve along the conduit upstream of the first valve and upstream of an insertion portion of the conduit within the access conduit.
11. The apparatus of claim 7 wherein:
the valve is a first valve between a main portion of the conduit and a downstream insertion portion of the conduit; and
the apparatus includes a second valve at an upstream end of an access conduit receiving the insertion portion.
12. A method for cleaning a vessel, the vessel having a wall and an access conduit initially sealed by a first valve, the method comprising:
inserting an insertion portion of a combustion conduit into the access conduit, the combustion conduit having a second valve;
forming a seal between the access conduit and the combustion conduit;
opening the first valve;
opening the second valve;
passing combustion gasses through the combustion conduit into the vessel; and
withdrawing the insertion portion from the access conduit.
13. The method of claim 12 wherein:

the opening of the first valve occurs during an intermediate stage of said insertion.

14. The method of claim 12 further comprising:
forming a seal between the combustion conduit and the access conduit.
15. The method of claim 14 wherein:
the forming of the seal occurs before the opening of the first valve.
16. The method of claim 12 wherein:
the opening of one of the first and second valves comprises a pivotal movement of a gate of said one valve; and
the opening of the other valve is manual.